

REMARKS

Claims 1-24 and newly added Claims 25-29 are active in the case. Claims 5-7 and 12-22 stand withdrawn from consideration. Reconsideration is respectfully requested.

The present invention relates to a magnesium carrier for olefin polymerization catalysts.

Claim Amendments

Claims 1 and 8 have been amended by describing the halogen-containing compound as a halogen-containing metal compound as supported on page 9, line 20-23 of the specification. Further, Claim 11 has been amended by including a limitation as to the sphericity of the product magnesium alkoxide particles, as this limitation is disclosed on page 15 of the text of the specification.

Newly added Claim 25 contains the subject matter of Claim 1 and further limits the alcohol component of the reacting system to a C₁₋₆-aliphatic alcohol as described in the sentence bridging pages 8 and 9 of the text, while Claim 26 further narrows the scope of the claimed magnesium compound by use of the limiting language of "consisting essentially of."

As to newly added Claims 27 and 28, basis for the claims is provided by the disclosure of the text on pages 11 and 10 respectively.

Finally, newly added Claim 29 finds basis in original Claim 8 and the description of the alcohol as a C₁₋₆-aliphatic alcohol and the halogen-containing compound as a halogen-containing metal compound. Entry of the amendments to the claims is respectfully requested.

Claim Objections

The objections raised with respect to Claims 1-4 and 11 are believed obviated by the amendments to these claims. Withdrawal of the objection is respectfully requested.

Prior Art Rejection

The present invention is directed to a magnesium carrier for olefin polymerization catalysts. In its broadest terms the magnesium compound carrier is prepared by reacting metallic magnesium, an alcohol and at least 0.0001 gram atoms, in terms of halogen atoms relative to one gram atom of magnesium, of a halogen and/or a halogen-containing metal compound, at 30° to 60° C.

Claims 1-4 stand rejected based on 35 USC 102(b) as anticipated by Murata et al, U. S. Patent 4,960,743. This ground of rejection is respectfully requested.

The Murata et al patent contains disclosure relevant to the present invention because it discloses a magnesium containing material as a carrier for olefin polymerization catalysts. As disclosed in columns 2 to 5 of the patent, the carrier is prepared by reacting magnesium with a halogenated hydrocarbon compound and an alkoxy group containing compound such as one of the compounds disclosed in the patent from column 2, line 64 to column 3, line 55 and then contacting the reaction product with a halogen-containing alcohol. On the other hand, the present invention as claimed is distinguished over the patent, because in the present process, magnesium metal is reacted with a halogen material that specifically is a halogen and/or a halogen-containing metal compound as required in amended Claim 1 and also newly added Claims 25 and 26. Thus, the halogen containing material disclosed in the patent, which is a halogenated hydrocarbon, is clearly not halogen per se nor a halogen-containing

metal compound. Moreover, the patent does not show or suggest the presence of a lower aliphatic alcohol as a reactant with halogen with magnesium. Still further, as to Claim 26, the limiting language of "consisting essentially of" eliminates the halogenated hydrocarbon (B), alkoxy containing compounds (C) and halogen-containing alcohols (D) of the patent from the scope of the claim. ✓

As to the subject matter of present Claim 4, the patent is silent as to a magnesium alkoxide that is defined in terms of a particular particle size, and in particular in terms of the of determining the particle size as defined by the equation set forth in the claim. Further, there is no suggestion in the patent that the disclosed magnesium containing product would have the same or similar particle size. Accordingly, the claim is believed patentably distinguished over the patent.

As to Claim 8, as well as newly added Claim 29, the same is believed distinguished over Murata et al for the same reason as Claim 1 is believed distinguished over the patent. The patent does not show or suggest halogen per se or a halogen-containing metal compound as the halogen source for reaction with magnesium metal.

Finally, Claim 11 is distinguished over Murata et al because the patent does not disclose a particulate magnesium alkoxide of the particle size range specified and of the sphericity also defined in the claim. Accordingly, withdrawal of the ground of rejection is respectfully requested.

Claims 1-3 and 8-10 stand rejected based on 35 USC 102(b) as anticipated by Mehta et al, U. S. Patent 4,820,672. This ground of rejection is respectfully requested.

The Mehta et al patent also discloses a magnesium based support for an olefin polymerization catalyst. As described in column 3, lines 18-30 of the patent, the magnesium

product is prepared by reacting magnesium metal again with a particular halogen containing reactant that is either an alkyl halide or a hydrogen halide. On the other hand, the magnesium compound presently claimed is prepared using either a halogen per se or a halogen-containing metal compound. Neither of these two essential ingredients is disclosed or suggested by the patent. Still further, with respect to newly added Claim 26, the limiting language "consisting essentially of" precludes the chloro-alcohol reactant of the patent from inclusion within the scope of the reaction by which the magnesium compound carrier of the invention is prepared.

Claim 8 is also believed distinguished over the patent for the same reason which is that the claim is likewise limited to halogen per se or a halogen-containing metal compound as a the halogen-containing reactant for reaction with magnesium. Accordingly, withdrawal of the prior art ground of rejection is respectfully requested.

It is now believed that the application is in proper condition for allowance. Early notice to this effect earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Norman F. Oblon
Attorney of Record
Registration No. 24,618

Frederick D. Vastine, Ph.D.
Registration No. 27,013



22850

Tel: 703-413-3000
Fax: 703-413-2220

NFO/FDV

I:\atty\FDV\200592US.am.wpd

MARKED UP COPY OF AMENDMENT

IN THE CLAIMS

Please amend Claims 1, 4, 8 and 11 as follows:

--1. (Amended) A magnesium compound [obtained] prepared by reacting [a metal] metallic magnesium, an alcohol[,], and at least 0.0001 gram atoms, in terms of [the] halogen [atom] atoms relative to one gram atom of magnesium, of a halogen and/or a halogen-containing metal compound, at [30] 30° to 60° C.

4. (Amended) A solid magnesium compound substantially comprising a magnesium alkoxide, [of which the] whose particle size distribution index (P), [represented by the following] as defined in formula (I-1), is smaller than 4.0, $P < 4.0$:

$$P = (D_{90}/D_{10}) \quad (I-1)$$

[()] wherein D_{90} indicates the particle diameter of the compound particles corresponding to the cumulative weight fraction of 90 % in the particle size distribution thereof computed from [the] light transmittance through a suspension of the compound particles in a hydrocarbon; and D_{10} indicates the particle diameter of the compound particles corresponding to the cumulative weight fraction of 10 % therein.[)].

8. (Amended) A magnesium compound [obtained] prepared by reacting [a metal] metallic magnesium, an alcohol[,], and at least 0.0005 gram atoms, in terms of [the] halogen [atom] atoms relative to one gram atom of magnesium, of a halogen and/or a halogen-containing metal compound, in the presence of a saturated hydrocarbon compound.

11. (Amended) A solid magnesium compound substantially comprising a magnesium alkoxide, [of which the] whose particle size distribution index (P), [represented by the following] as defined in formula (I-1), is smaller than 4.0, $P < 4.0$:

$$P = (D_{90}/D_{10}) \quad (I-1)$$

[()] wherein D_{90} indicates the particle diameter of the compound particles corresponding to the cumulative weight fraction of 90 % in the particle size distribution thereof computed from [the] light transmittance through a suspension of the compound particles in a hydrocarbon; and D_{10} indicates the particle diameter of the compound particles corresponding to the cumulative weight fraction of 10 % therein.[]], and whose particles have a sphericity (S), as defined in formula (I-2), of smaller than 2.0, $S < 2.0$:

$$S = (L_1/L_2)^3$$

wherein L_1 indicates the major diameter of the magnesium compound particle prepared by imaging the compound through scanning electronic microscopy followed by analyzing the projected image of the particle, and L_2 indicates the diameter of the circle having the same area as the projected area of the magnesium compound particle.--

Please add the following new claims:

Claims 25-29. (Newly Added)